

# **OUTDOOR NEOTHERM<sup>®</sup>**

High Efficiency Modulating Boilers & Volume Water Heaters



## **PACKED WITH FEATURES**

- Large Color Touch Screen
- Less Than 10ppm NOx
- Up to 97% Thermal Efficiency
- 8 Models 150 to 850 MBH
- Vent up to 100 feet, horizontal or vertical
- Tested and certified to meet your outdoor installation needs.

**LAARS<sup>®</sup>**   
**Heating Systems Company**  
A subsidiary of **BRADFORD WHITE<sup>®</sup>** Corporation

# LAARS® NEOTHERM®

## OUTDOOR

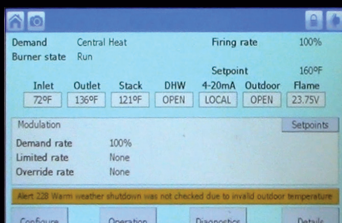
The Outdoor NeoTherm is a direct vent, sealed combustion, condensing boiler or volume water heater designed specifically for outdoor installations. Outdoor NeoTherm units meet or exceed the stringent testing demands of ANSI Z21.13-2013 section 5.26 and ANSI Z21.10.3-2013 section 5.24 and 5.30 for outdoor installations including wind and rain testing. Rest assured that the outdoor NeoTherm will hold up under tough outdoor conditions. NeoTherm reaches thermal efficiencies as high as 97% and modulates with a 5 to 1 turndown. It features an ASME stainless steel heat exchanger, direct spark ignition system, low NOx emissions (less than 10ppm) and meets low lead installation requirements, for a package that's easy to use, and easy on the environment.

NeoTherm® is built standard with the upgraded LAARS® Integrated Control System, which includes a user-friendly large color touch screen interface that does it all with functions clearly spelled out in English rather than complicated codes. The PID control seamlessly integrates with building automation systems and can easily become part of multiple boiler sequencing, including a cascading feature that rotates load across up to eight NeoTherms to optimize boiler life without the need for additional system controls.



Available for natural or propane gas, with a selection of factory-mounted options, 8 sizes ranging from 150 to 850 MBH, make these outdoor models suitable for a variety of residential and commercial applications.

## NEOTHERM INTEGRATED CONTROLS FEATURES:



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- **Large, easy to navigate color touch screen**
- **Easy to use menus for login, quick start, advanced setup, tests and diagnostics**
- **Integrated PID temperature and ignition control**
- **Accepts 4-20mA or 0-10VDC input for modulation**
- **Lead Lag with up to 8 other NeoTherm volume water heaters**
- **Quick start feature for easy one boiler setups**
- **Complete diagnostics for analog and digital inputs**
- **Test feature allows for forced min and max firing**
- **Display holds, alerts and errors in clear text form**
- **Password protected parameters for installer use**
- **Modbus capable**

# LAARS® OUTDOOR NEOTHERM®



## NeoTherm Features:

- Meets ANSI Z21.13-2013, section 5.26 boilers for outdoor installations
- Meets ANSI Z21.10.3-2013, section 5.24 wind test and section 5.30 rain test
- Stainless steel heat exchanger
- Easy to service
- Low NOx system (10ppm) exceeds the most stringent regulations for air quality
- LAARS Integrated Control System<sup>SM</sup>
- Integrates with Building Automation Systems
- Integrates with Building Automation Systems

## Standard Equipment:

- High condensing efficiency
- Modulation down to 20% of full fire (5:1 turndown)
- Sealed combustion chamber
- Pre-mix stainless steel burner
- Horizontal or vertical direct vent
- Horizontal vent and air terminals
- Vent and air pipe lengths of up to 100 equivalent feet (each)
- Built-in condensate trap
- Vent temperature cutoff feature
- Spark ignition system
- Sensor for domestic water tank
- 160 psi maximum working pressure
- Stainless steel heat exchanger with welded construction (no gaskets)
- Optional pumps (sized to model)
- ASME "H" stamp (optional "HLW" stamp for volume water heaters)
- Water flow switch (399 & 500 only)
- 125 psi (861 kPa) ASME rated pressure relief valve (volume water heaters)
- 75 psi (517 kPa) ASME rated pressure relief valve
- Multiple pump control for boiler pump, system pump and indirect domestic water pump, each with delay (boiler models)
- Outdoor reset with customizable reset curves, domestic hot water override and warm weather shutdown (boiler models)
- Outdoor air temperature sensor (boiler models)
- Indirect water heater priority (boiler models)
- Sensor for indirect domestic water tank (boiler models)
- Temperature & pressure gauge
- Drain valve
- Electronic PID modulating control stages up to eight boilers
- Large color touch screen
- Alarm output
- Accepts external 4-20mA (0-10V with optional converter) modulation signal
- On/off toggle switch
- Manual reset high limit
- Burner sight glass
- 8 year limited warranty (volume water heater)
- 10-year limited warranty (boiler)

## Laars® NeoTherm® Outdoor Sizing Data

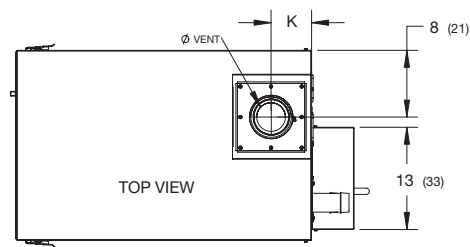
### Hydronic Boiler

Size	Input		Output		Thermal Efficiency %	Combustion Efficiency %	AFUE %	Shipping Weight	
	BTU/h	kW	BTU/h	kW				lbs.	kg
NTH 150	150,000	44	138,000	40.4	N/A	N/A	95.0	228	104
NTH 210	210,000	61.5	194,000	61.5	N/A	N/A	95.0	270	125
NTH 285	285,000	83.5	264,000	77.4	N/A	N/A	95.0	299	136
NTH 399	399,900	117.2	386,000	113.1	96.5	96.5	N/A	364	165
NTH 500	500,000	146.4	475,000	136.2	95.0	95.0	N/A	419	190
NTH 600	600,000	175.7	572,000	167.6	95.3	96.0	N/A	426	193
NTH 750	750,000	219.8	724,000	212.1	96.6	96.6	N/A	481	218
NTH 850	850,000	248.9	813,000	238.2	95.7	95.7	N/A	503	228

### Volume Water Heater

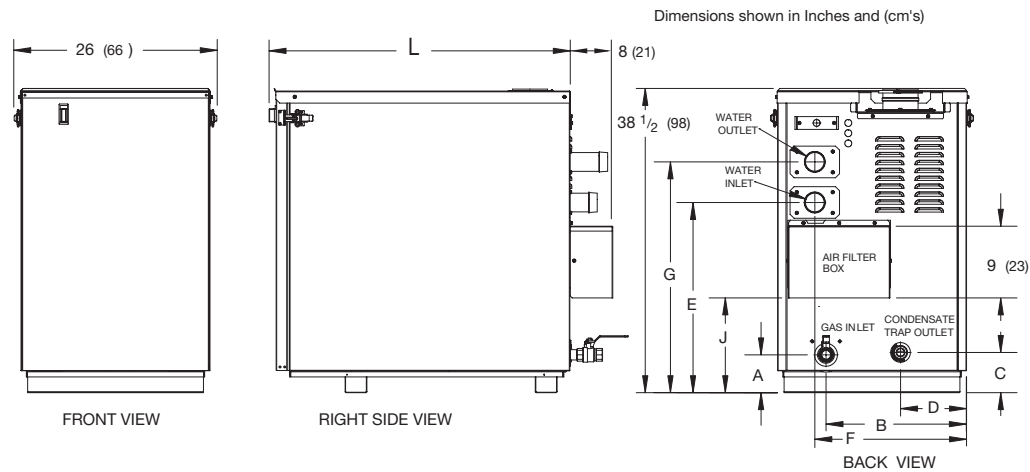
Size	Input		Output		Thermal Efficiency %	Shipping Weight	
	MBH	kW	BTU/h	kW		lbs.	kg
NTH 150	150	44	142.5	42.8	95	228	103
NTH 210	199	58.3	193	56.6	97	270	123
NTH 285	285	83.5	270.8	79.3	95	299	136
NTH 399	399	116.9	383	112.3	96	364	165
NTH 500	500	146.5	480	141.1	96	419	190
NTH 600	600	175.8	582	170.5	97	426	193
NTH 750	750	219.8	705	206.7	94	481	218
NTH 850	850	249	816	239.1	96	503	228

## Dimensional Data



The "BACK VIEW" shown is of a 500 MBH model. All other units will be similar, yet different.

All models are shipped with adapters for the air and vent that accept standard pipe of the proper size and type.



## Laars® NeoTherm® Outdoor

	A		B		C		D		E		F		G		H		J		K		L		Vent	
Size	in	cm	in	cm	in	cm	in	cm	in	cm	in	cm	in	cm	in	cm	in	cm	in	cm	in	cm	in	cm
150	6 <sup>1</sup> / <sub>4</sub>	16	11	28	13	33	17 <sup>1</sup> / <sub>4</sub>	43.8	23 <sup>1</sup> / <sub>2</sub>	60	18	45.7	27	69	38 <sup>1</sup> / <sub>4</sub>	97	23 <sup>1</sup> / <sub>2</sub>	60	5 <sup>1</sup> / <sub>4</sub>	19	20	60	3	7.6
199/210	6 <sup>1</sup> / <sub>4</sub>	16	11	28	13	33	17 <sup>1</sup> / <sub>4</sub>	43.8	23 <sup>1</sup> / <sub>2</sub>	60	18	45.7	27	69	38 <sup>1</sup> / <sub>4</sub>	97	24 <sup>1</sup> / <sub>2</sub>	60	5 <sup>1</sup> / <sub>4</sub>	30	27	68.6	3	7.6
285	6	15.56	11	28	5	13	17 <sup>1</sup> / <sub>4</sub>	43.8	24	61	19	48	28 <sup>1</sup> / <sub>4</sub>	72	38 <sup>1</sup> / <sub>4</sub>	97	12	30.5	7 <sup>1</sup> / <sub>4</sub>	43	27	68.6	4	11
399	8	15.5	19 <sup>1</sup> / <sub>2</sub>	50	7 <sup>3</sup> / <sub>4</sub>	20	17 <sup>1</sup> / <sub>4</sub>	43.8	24	61	19	48	28 <sup>1</sup> / <sub>4</sub>	72	38 <sup>1</sup> / <sub>4</sub>	97	12	30.5	6	55	31 <sup>1</sup> / <sub>4</sub>	80.5	4	11
500	5	13	17 <sup>3</sup> / <sub>4</sub>	45	5	13	8 <sup>1</sup> / <sub>4</sub>	21	24	61	19	48	29 <sup>1</sup> / <sub>4</sub>	74	38 <sup>1</sup> / <sub>4</sub>	97	12	30.5	5 <sup>5</sup> / <sub>8</sub>	66	38	96.5	4	11
600	33 <sup>1</sup> / <sub>2</sub>	85	3.0	8	5	13	8 <sup>1</sup> / <sub>4</sub>	21	24	61	19	48	29 <sup>1</sup> / <sub>4</sub>	74	38 <sup>1</sup> / <sub>4</sub>	97	12	30.5	5 <sup>3</sup> / <sub>4</sub>	66	38	96.5	4	11
750	32 <sup>3</sup> / <sub>4</sub>	83.2	3.0	8	5 <sup>1</sup> / <sub>4</sub>	13.4	17 <sup>1</sup> / <sub>4</sub>	43.8	24	61	19	48	29 <sup>1</sup> / <sub>4</sub>	74	38 <sup>1</sup> / <sub>4</sub>	97	12	30.5	5 <sup>3</sup> / <sub>4</sub>	78	51 <sup>1</sup> / <sub>4</sub>	130	6	17
850	32 <sup>3</sup> / <sub>4</sub>	83.2	3.0	8	5 <sup>1</sup> / <sub>4</sub>	13.4	17 <sup>1</sup> / <sub>4</sub>	43.8	24	61	19	48	29 <sup>1</sup> / <sub>4</sub>	74	38 <sup>1</sup> / <sub>4</sub>	97	12	30.5	5 <sup>3</sup> / <sub>4</sub>	89	55 <sup>3</sup> / <sub>4</sub>	141.5	6	17



# LAARS®

## Heating Systems Company

A subsidiary of **BRADFORD WHITE** Corporation

800.900.9276 • Fax 800.559.1583 (Customer Service, Service Advisors)

20 Industrial Way, Rochester, NH 03867 • 603.335.6300 • Fax 603.335.3355 (Applications Engineering)

1869 Sismet Road, Mississauga, Ontario, Canada L4W 1W8 • 905.238.0100 • Fax 905.366.0130

[www.Laars.com](http://www.Laars.com)